

PATENT

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Date: November 21, 2008

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicant(s): Bryan T. Starbuck, *et al.*

Examiner: Djenane M. Bayard

Serial No: 10/601,741

Art Unit: 2141

Filing Date: June 23, 2003

Conf. No: 9003

Title: ADVANCED SPAM DETECTION TECHNIQUES

**Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

REPLY BRIEF

Dear Sir:

Applicants' representative submits this Reply Brief in response to the Examiner's Answer dated October 17, 2008. In the event any fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [MSFTP438US].

REMARKS

Claims 1-12, 42-52, and 73 are currently pending and are presently under consideration. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments herein. In particular, the following comments address deficiencies contended in the Examiner's Answer to applicants' Appeal Brief dated October 17, 2008. Applicants' representative appreciates and takes notice of the Examiner's reversal of rejection of claims 42-54 under 35 U.S.C. §101.

I. Rejection of Claims 1-12 and 73 Under 35 U.S.C. §101

Claims 1-12 and 73 stand rejected under 35 U.S.C. §101 because the claimed invention is allegedly directed to non-statutory subject matter. It is requested that this rejection be reversed for at least the following reason. The claims as amended recite patentable subject matter as they produce a useful, concrete, and tangible result.

Because the claimed process applies the Boolean principle [abstract idea] to produce a *useful, concrete, tangible result* ... on its face the claimed process comfortably falls within the scope of §101. *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1358. (Fed.Cir. 1999) (Emphasis added); See *State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1601 (Fed.Cir.1998). The inquiry into patentability requires an examination of the contested claims to see if the claimed subject matter, as a whole, is a disembodied mathematical concept representing nothing more than a "law of nature" or an "abstract idea," or if the mathematical concept *has been reduced to some practical application rendering it "useful."* *AT&T* at 1357 citing *In re Alappat*, 33 F.3d 1526, 31 1544, 31 U.S.P.Q.2D (BNA) 1545, 1557 (Fed. Cir. 1994) (Emphasis added) (holding that more than an abstract idea was claimed because the claimed invention as a whole was directed toward forming a specific machine that produced the useful, concrete, and tangible result of a smooth waveform display).

The claimed subject matter generally relates to detecting spam e-mail messages based at least in part on evaluating pairs of features in a message. In one example, the features can also be utilized to train a machine learning spam filter. The spam filter can be leveraged in determining whether messages are spam based at least in part on previous features and

relationship thereof to spam messages. To this end, claim 1 recites *the features of the pairs are evaluated for consistency with respect to one another to determine if the message is spam.*

This is certainly a useful result to one receiving spam e-mails as such a determination can facilitate filtering the e-mail, reporting the e-mail, or any number of actions. Additionally, the result is a concrete one, as it is repeatable, and tangible as embodied in a computer-implemented system such to accord a real world value. Further, claim 73 recites *means for using the pairs of features to train a machine learning spam filter.* Again, this is a useful and concrete result as such training mitigates the need to manually configure at least a portion of the filter. Moreover, as claim 73 has been amended to recite a computer-implemented system, this provides the requisite tangibility aspect to be patentable subject matter.

The Examiner asserts that claims 1-12 are directed towards computer programs and that the broadest reasonable interpretation of claim 73 is to a software routine. Even assuming the Examiner is correct, in view of the recent Federal Circuit opinion in *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1338 (Fed. Cir. 2005), this would still be statutory subject matter, as the court stated that software code alone constitutes patentable subject matter.

Title 35, section 101, explains that an invention includes ‘any new and useful process, machine, manufacture or composition of matter.’ Without question, *software code alone qualifies as an invention eligible for patenting under these categories, at least as processes.* (emphasis added) (citations omitted).

Therefore, even if the claims were interpreted merely as software, they would constitute patentable subject matter under *Eolas*. For at least the foregoing reasons, it is readily apparent that the claimed subject matter is patentable under 35 U.S.C. §101. Accordingly, rejection of claims 1-12 and 73, under this section should be reversed.

II. Rejection of Claims 1-8, 10-12, 42-49, 51-52, and 73 Under 35 U.S.C. §102(e)

Claims 1-8, 10-12, 42-49, 51-52, and 73 stand rejected under 35 U.S.C. §102(e) as being anticipated by Buford, *et al.* (US 2003/0041126). It is respectfully requested that this rejection be reversed for at least the following reason. Buford, *et al.* fails to disclose or suggest each and every element recited in the subject claims.

For a prior art reference to anticipate, 35 U.S.C. §102 requires that “***each and every element*** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (quoting *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)) (emphasis added).

As described, the subject matter as claimed relates to detecting spam e-mail messages; in particular, the features of origination information can be analyzed for consistency to evaluate the integrity of the e-mail. When an e-mail is transmitted, a variety of protocols are utilized having various headers and information relating to the origin of the e-mail; this information can be evaluated to determine validity of values (or features) throughout. For example, an IP address feature can be verified with a domain name feature of the same e-mail to discover if the domain is in the appropriate address or range of addresses. If not, inconsistency between this pair of features can indicate spam. Alternatively, for example, the inconsistency can be a result of misconfiguration of an e-mail server/client and can be populated in a trained spam filter to indicate that the inconsistency is not itself indicative of spam if desired. To this end, claim 1 recites *a message parsing component that identifies features relating to at least a portion of origination information of a message, and a feature pairing component that combines the features into useful pairs, the features of the pairs are evaluated for consistency with respect to one another to determine if the message is spam*. Buford, *et al.* fails to disclose or suggest such claimed aspects.

Buford, *et al.* relates to reporting customer e-mail complaints for unsolicited commercial e-mails. In particular, Buford, *et al.* appears to disclose a system that receives a complaint of an unsolicited commercial e-mail by e-mail notification from the customer and breaks the e-mail into a plurality of headers and bodies. Typically, the innermost header is evaluated by the system as this is likely the original unsolicited e-mail. Information regarding the e-mail can be stored, such as IP address, and validated for subsequent reporting. However, Buford, *et al.* fails to disclose or suggest *features of the pairs are evaluated for consistency with respect to one another to determine if the message is spam*.

On the contrary, Buford, *et al.* isolates information in messages for storage and subsequent reporting or data access. To this end, the values are input into a database, for

example, such that they are isolated into cells and are, thus, not combined into pairs as recited in the subject claims. Additionally, the values of Buford, *et al.* are not evaluated to determine if a message is spam as recited in the claims; rather the message in Buford, *et al.* has already been identified as spam by the user and reported to a complaint system. The Examiner acknowledges this assertion. (*See*, page 10 of the Examiner's Answer dated October 17, 2008). Thus, no determination is made regarding spam in Buford, *et al.*, much less a determination made by evaluating the feature pairs of the e-mail with respect to one another, as recited in the subject claims. At least in this regard, Buford, *et al.* fails to disclose or suggest at least this element of the subject claims, as admitted by the Examiner, and thus fails to disclose or suggest each and every element recited in the subject claims as required.

Nevertheless, the Examiner asserts that Buford, *et al.* teaches the same functionality as applicants' claimed subject matter as it parses e-mail messages to obtain URL, e-mail addresses, and telephone number of a spam source. (*See* Advisory Action dated June 23, 2008). Assuming *arguendo* that Buford, *et al.* does teach this, it still does not describe each and every element of applicants' claimed subject matter. For example, in addition to parsing the e-mail into features, the claims recite comparing the features to one another to determine if the message is spam. Buford, *et al.* is completely silent regarding this aspect. Furthermore, as described, the system in Buford, *et al.* already knows the message is spam (as indicated by a user) upon receiving the message for parsing, whereas applicants' claims recite actually making a determination of spam based on comparison of the features. As stated above, the Examiner admits this. Moreover, the Buford, *et al.* system merely stores the parsed elements; no comparison (*e.g.*, evaluation with respect to one another) ever takes place among the elements of a single e-mail in Buford, *et al.* to determine if the message is spam, as described in applicants' claims.

The Examiner again asserts, in the Examiner's Answer, that Buford, *et al.* does teach evaluating features of the pairs for consistency with respect to one another to determine a message as spam. (*See*, pages 10-11). The Examiner reasons that Buford, *et al.* teaches evaluating "when the last validated header is obtained to identify the actual source of the embedded email from multiple received lines of the validated header." Indeed, Buford, *et al.* appears to contemplate validating the source of an email by validating the IP address of the last header in the section cited by the Examiner. (*See*, paragraph [0041]). However, this is not indicative of *features of the pairs are evaluated for consistency with respect to one another to*

determine if the message is spam. As an initial consideration, validating the source of the email is not akin to evaluating feature pairs for consistency, as recited in claim 1. In particular, the IP address can be validated to ensure it conforms to an IP specification, and indeed, this is what Buford, *et al.* is describing. (See, paragraphs [0042-0044]. Buford discusses determining if the correct delimiters are present in the IP address as well as if the numbers are between 0 and 255, which is an independent determination – *e.g.*, the IP address is not compared to any other feature of the message). There is no indication in Buford, *et al.* that validating an IP address relates to comparing the IP address to one or more values (feature pairs), as in the applicants' claims. Moreover, whether the IP address is successfully validated, in Buford, *et al.*, has absolutely no bearing on determining the message as spam, as recited in the claims. For example, even if the IP address is valid, the message can still be spam. For contrast, the applicants' claimed subject matter, in one example, can compare the IP address to a host name in the email to determine if the message is spam – these values would be a feature pair of the message. Thus, the IP address can be valid; however, the IP address may not match the host name, which may increase the likelihood that the message is spam. Buford, *et al.* recites no functionality regarding **determining** a message as spam, since such is already determined (as acknowledged by the Examiner and shown above). In view of the foregoing reasons, it is readily apparent that Buford, *et al.* fails to disclose or suggest ***features of the pairs are evaluated for consistency with respect to one another to determine if the message is spam***, and thus fails to disclose or suggest each and every element recited in claim 1.

Additionally, claim 42 recites similar aspects as well as ***using the pairs of features to train a machine learning spam filter regarding acceptable or unacceptable pairs, and detecting a spam e-mail based at least in part on comparing one or more pairs of features in the e-mail to at least one pair in the machine learning spam filter.*** Buford, *et al.* is completely silent regarding these aspects as well. As shown *supra*, Buford, *et al.* does not disclose or suggest detecting spam e-mail; rather the e-mail has already been indicated as spam by the complainant user, and a call ticket is created and forwarded to a help desk (as acknowledged by the Examiner). Moreover, Buford, *et al.* does not disclose or suggest detecting such according to comparing pairs of features of the e-mail to those of a machine learning spam filter as recited in the subject claim; rather Buford, *et al.* merely allows for reporting related to the spam e-mails. Similarly, as shown above, the Examiner's assertion regarding the teaching of Buford, *et al.*,

even if taken as correct, does not arise to teaching or disclosing each and every element of claim 42 by Buford, *et al.* Accordingly, Buford, *et al.* fails to disclose or suggest each and every element as recited in claim 42.

Furthermore, Buford, *et al.* does not disclose each and every element recited in claim 73. Independent claim 73 recites similar aspects to some in claim 42, namely *means for combining at least two features into pairs, the pairs are evaluated against each other for consistency and means for using the pairs of features to train a machine learning spam filter*. As shown above, Buford, *et al.* does not contemplate such a filter much less evaluating feature pairs against one another as recited in the subject claim.

Thus it is readily apparent that Buford, *et al.* fails to disclose or suggest each and every element recited in claims 1, 42, and 73. Thus, rejection of these claims, as well as claims 2-8, 10-12, 43-49, and 51-52, which depend therefrom, should be reversed.

III. Rejection of Claims 9 and 50 Under 35 U.S.C. §103(a)

Claims 9 and 50 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Buford, *et al.* in view of Capiel (US 2003/0149733). It is respectfully requested that this rejection be reversed for at least the following reasons. Buford, *et al.* and Capiel, when taken alone or in combination, fail to teach or suggest all elements recited in the subject claims. In particular, Capiel fails to cure the aforementioned deficiencies of Buford, *et al.* with respect to claims 1 and 42, from which claims 9 and 50 depend. Accordingly, this rejection should be reversed.

CONCLUSION

The subject application is believed to be in condition for allowance in view of the above comments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP438US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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